NASA

SIGNATURE PAGE

The undersigned parties have approved, and agreed to, this Annual Operating Agreement which specifies the safety, security, environmental, reliability, maintainability, and quality assurance products and services to be provided by the Lewis Office of Safety, Environmental and Mission Assurance (OSEMA) in support of the aeronautics and space programs at the NASA Lewis Research Center.

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DIRECTOR, OFFICE OF SAFETY, ENVIRONMENTAL, AND MISSION ASSURANCE
LEWIS RESEARCH CENTER

_____

DIRECTOR
LEWIS RESEARCH CENTER

_____

CODE Q/ASSOCIATE ADMINISTRATOR FOR OFFICE OF SAFETY AND MISSION ASSURANCE

_____

CODE R/ASSOCIATE ADMINISTRATOR FOR AERONAUTICS AND SPACE TRANSPORTATION TECHNOLOGY

_____

CODE J/ASSOCIATE ADMINISTRATOR FOR MANAGEMENT SYSTEMS AND FACILITIES

This Annual Operating Agreement has been prepared and adopted by the following Lewis OSEMA Staff:

_____

CHIEF ENGINEER
OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE

_____

CHIEF, PROJECT ASSURANCE OFFICE
LEWIS RESEARCH CENTER

_____

CHIEF, QUALITY MANAGMENT OFFICE
LEWIS RESEARCH CENTER

_____

CHIEF, LeRC SAFETY OFFICE
LEWIS RESEARCH CENTER

_____

CHIEF, ENVIRONMENTAL MANAGMENT OFFICE
LEWIS RESEARCH CENTER

_____

CHIEF, SECURITY MANAGEMENT OFFICE
LEWIS RESEARCH CENTER

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TECHNICAL ASSURANCE MANAGER
OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

Page No.

1.0 INTRODUCTION

The NASA Lewis Research Center OSEMA Annual Operating Agreement (AOA) for FY99 establishes agreement among: the Director, NASA Lewis Research Center (LeRC); the Director, Lewis Office of Safety, Environmental, and Mission Assurance (LeRC OSEMA); the NASA Associate Administrator, Code Q, Office of Safety and Mission Assurance (OSMA); the NASA Associate Administrator, Code R, Aeronautics and Space Transportation Technology; and the NASA Associate Administrator, Code J, Management Systems and Facilities. The AOA summarizes the Safety, Security, Environmental, and Mission Assurance products and services provided in support of Lewis research and technology programs and the Center's institutional operations for FY99, and also provides estimates for the out-years. The AOA details OSEMA activities and processes, the metrics that will be used to gage success, key deliverables for FY99, resources for FY99, and resource planning for FY99 through FY02.

1.1 PURPOSE

This Agreement outlines Lewis OSEMA's support of Center, Headquarters and Agency programs, activities and operations in furtherance of the goals and objectives of all four of NASA's Strategic enterprises; all of which are encompassed in the diverse work products of the Lewis Research Center. With primary focus on aeronautics and space propulsion; OSEMA also supports the Center's significant activities in microgravity space science, International Space Station power and science utilities, space communications and other technology developments. The Office provides assessment, assurance and insight capabilities which enable the various cross-cutting processes and optimizes the value of the contributions made at Lewis. OSEMA activities in support of these Enterprise Strategic Initiatives are reflected in the detailed descriptions found in Sections 2 through 7.

1.2 OSEMA MISSION

The mission of the Lewis Office of Safety, Environmental, and Mission Assurance is to promote and advance the goals of our Center, NASA, and the Nation by meeting and exceeding the expectations of those who rely on us to assure product quality, program mission success, and a safe, secure, environmentally sound and healthful workplace. We do this through the development and application of value-added practices and services that identify, manage, and mitigate risk.

1.3 OSEMA GOALS, OBJECTIVES, AND MEASURES

1. Be the center of excellence at Lewis in the development, implementation, and maintenance of process control technologies and tools. Lead the Center to the fuller understanding of the value of process controls that will assure the success of Lewis programs, operations and activities, and gain and maintain the Center's registration to ISO 9001.
2. Provide an array of Safety and Mission Assurance (SMA), Environmental, and Security products and services which meet and exceed the expectations of our customers.
3. Ensure a safe, secure, environmentally sound and healthful workplace for the employees and the community. Use lost-time accident frequencies and severity, and the cost of lost property, as metrics to drive an effective Center Safety Program. Provide Lewis' workforce, visitors, and neighbors an environment free from the threat of health hazards, that meets all regulatory standards, and that supports both the Lewis mission and its quality of life.

4. Assure that safety requirements are met for all space flight projects and that mission success is consistent with NASA and Center goals.
5. Support the Lewis Aeronautics Program by the application of appropriate SMA Risk Management disciplines and techniques to improve the likelihood of mission success.
6. Support the Space Power, Communications, and Propulsion Research Programs with appropriate SMA disciplines and risk reduction technologies.
7. Seek out and develop new technologies which can be applied to improve the SMA, Environmental Management, and Security disciplines and enhance the value added to program, operations, and facility support.

1.4 AOA ASSUMPTIONS

1. OSEMA is responsible for assuring the implementation of appropriate, adequate, and effective Environmental, Security and SMA programs for Lewis projects and operations, and does so with the direction and support of Agency and Center Management.
2. Resources are planned consistent with the workforce and budget requirements at the Lewis Research Center.
3. Planned resources for civil servant complement, Research Operations Support, Program Support, Code Q and R projects, and Construction of Facilities projects will be available.
4. The internal and external regulatory environment will remain relatively stable, with regulatory requirements becoming somewhat more stringent over time.
5. OSEMA is responsible for assuring that all Lewis employees work in a safe, secure, and healthful environment.
6. Ongoing remedial investigations at LeRC will not reveal significant new environmental hazards beyond those for which mitigation and remediation has been planned.
7. Lewis will continue to perform significant work in support of NASA's initiatives in Aeronautics and Space Transportation Technology, Earth and Space Science, and the Human Exploration and Development of Space.

1.5 STRATEGIC LINKAGES

This AOA outlines a plan for FY99 that reflects the Lewis Strategic Implementation Plan and derives its requirements from top-level NASA and Lewis documents as shown in Figure 1.0. Through these relationships, the AOA is directly linked to the goals and objectives contained in the Code R, "Three Pillars to Success". The Plan contains ten technical objectives for which OSEMA will provide significant support during the year. Table 1.0 lists these objectives and delineates the applicable AOA functional activities which relate to them.

Figure 1.0

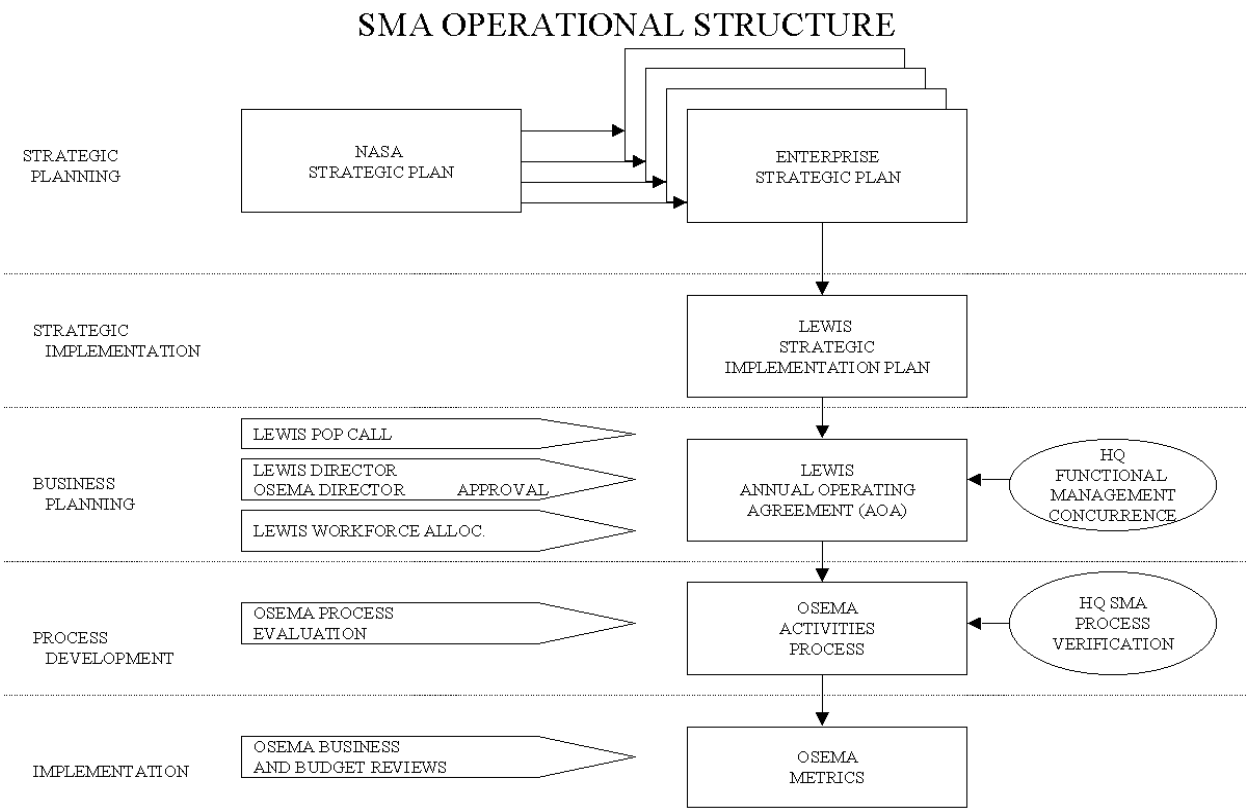

TABLE 1.0. AOA LINKAGES TO LEWIS STRATEGIC IMPLEMENTATION PLAN

IMPLEMENTATION PLAN ELEMENT	AOA FUNCTIONAL ACTIVITY
Develop environmentally compatible and economically viable engines for an advanced High Speed Civil Transport (HSCT).	3.1 AERONAUTICS
Develop computing tools to reduce aircraft design and development time	3.1 AERONAUTICS
Reduce the system cost contribution of access-to-space propulsion systems and associated subsystems by improving performance, life, function, and operability while reducing cost.	3.2.2. Space Technology
Develop advanced spacecraft propulsion technology.	3.2.2 Space Technology
For the combustion science and fluid physics disciplines, enable the research community to use gravity as an experimental variable.	3.2.1 Microgravity Science
Support the deployment and operation of the International Space Station (ISS).	3.2.2 Space Technology 3.3 ASSURANCE ENGINEERING
Develop power, onboard propulsion, communications, and other advanced spacecraft technologies.	3.2.2 Space Technology
Improve the effectiveness and usage of Lewis test and computational facilities.	3.3 ASSURANCE ENGINEERING 4.2 QUALITY ASSURANCE 5.0 LeRC SAFETY OFFICE 6.0 ENVIRONMENTAL MANAGEMENT OFFICE
Obtain and maintain ISO 9001 certification	1.7.5 ISO 9001 4.3 QUALITY MANAGEMENT
Develop a comprehensive risk management methodology for research and technology development	1.7.1 Risk Management 4.3 QUALITY MANAGEMENT 5.0 LeRC SAFETY OFFICE

1.6 EXECUTIVE SUMMARY

Five organizational offices along with the Directorate-level staff office, comprise the Lewis Office of Safety, Environmental and Mission Assurance and are delegated the responsibilities to meet the mission, goals, and objectives detailed in this AOA. Figure 2.0 summarizes the key activities and processes for each of OSEMA's six functional offices. Sections 2 through 7 of this AOA provide an overview of each office's planned operations, management issues and concerns, key FY99 deliverables, and associated metrics.

The OSEMA **Management Operations Staff Office (0500)** is the focus for strategic, business, and resource allocation planning in the Office. The Office assures the adequate implementation of NASA and Lewis administrative, human resources, and fiscal policies, while supporting office managers and personnel in providing centralized resource, technical, personnel, and administrative management expertise.

The OSEMA **Project Assurance Office (0510)** is tasked with providing assurance, insight, independent assessment and SMA support to Lewis Aerospace Programs/Projects in a wide range of disciplines including assurance engineering and management, systems safety, risk management, reliability/availability/maintainability, software quality and safety, materials and processes, and EEE parts engineering. The **Quality Management Office (0520)** provides the Center with the capability to assess the efficacy of its process controls and those of its suppliers through internal and external quality assessments. It provides materials and process review and approval for space flight programs. The Office also maintains Materials Intercenter Agreements with other NASA Centers and provides quality assurance insight, independent assessment and quality engineering support to programs and projects.

The LeRC **Safety Office (0530)** is responsible for the development, implementation and execution of a safety program that is compliant with all applicable regulatory requirements. The safety program assesses the risks of Lewis activities and operations, and informs cognizant management of those risks and the actions developed to mitigate them. Similarly, the **Environmental Management Office (0540)** is tasked with developing and managing an environmental protection program at Lewis that complies with all governing regulations, identifies risks posed by current and past Lewis programs, operations, and activities (and by those of the predecessors on its sites), develops and implements processes to remediate, abate, and control these risks, and reports these activities to Lewis and NASA Management.

The Lewis **Security Management Office (0550)** is responsible for the development and implementation of programs designed to insure that the Government and those working or visiting at Lewis are secure and protected from threats to their persons, information and property. Activities include control of intellectual property, electronic data and information technologies, national security information, and other sensitive program, project, or design information. The Lewis Emergency Planning and Response function is managed within this Office.

Appendix 1 provides a tabular summary of each office's activities for FY99. The resources planned for the FY99 activities are summarized for each office in Appendix 2, and details both fully funded activities and over guideline, or under funded activities. Appendix 3 summarizes the

Figure 2.0

OSEMA
ACTIVITIES AND PROCESSES

Management Operations
Code Q Management
ROS/PS Management
Code R Management
CoF Management

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE (0500)

Project Assurance Office (0510)

Aeronautics
High Speed Research
Subsonic Technology
Aviation Safety
BASE
HPCC

Space
Microgravity
Space Power
Space Communication
ELV
Space Transportation

Assurance Engineering
Space Station Independent Assessment
Plum Brook Support
Welding Engineering
Assurance Programs

Quality Management Office (0520)

Quality Engineering
Matrix Support to PAO/Projects
Independent SMA Assessment
Facilities Evaluation
Failure Analysis
M&P Review Process Approved

Quality Assurance
SMA Audit of Suppliers
Critical Test & Inspection Validation
Developing & Implementing Quality Activities
Maintenance of Quality Management Documents
Audits of LeRC Non-OSEMA Quality Functions

Quality Management
GIDEP
Lessons Learned Database Maint.
QASAR
Preventative & Corrective Action Sys.
Problem Reporting (PRACA)

LeRC Safety Office (0530)

Facility Support
Facility Inspections
Executive Safety Board
Safety Committees
Incident Reporting Information System
Mishap Reduction
Mishap Investigation
Safety Permit
Incident Response

Construction Support
Site Inspection
Project Reviews
Mishap Reduction
Mishap Investigation

Technical Support
Engineering
Reviews
Plans

Programs/Processes
EPP Support
Safety Training
Quality Program (BMS/ISO 9001)
Document Management
Regulatory Compliance
Lewis Safety Manual

Environmental Management Office (0540)

Remediation
Environmental
Plum Brook (Reactor)

Abatement
Construction Support
Asbestos
Lead Paint
Noise

Compliance
Environmental
Industrial Hygiene
Health Physics
Chemical Management
Chemical Sampling & Analysis
Division Support

Security Management Office (0550)

Physical Security
Center Access Control
Traffic Management
Facility Security
Patrols and Incident Responses
Investigations

External Physical Security
Emergency Preparedness
Emergency Response Exercises
Community & Fed. Response

Information Security
Database Development & Maint.
Unclassified Info. Protection
Project Security
Classified Info. Protection
Threat Prog/Agency Automated System Hub
Classified Contract Security

Personnel Security
Security Education & Awareness
Suitability Investigations
Security Clearance
Serious Misconduct Resolution

Info. Tech. Sys. Security
Unclassified Computer Security
Classified Computer Security
Communications Security
Agency Expert Ctr IT Security

resources and activities planned by each office for both FY99 and future years. High-level summary spreadsheets for all of OSEMA are provided in Figures 3-0 and 3-1 of Appendix 3.

1.6.1 OSEMA ISSUES AND CONCERNS

The Environmental Management Office has identified a major concern with the FY 2000 Code R Environmental Compliance Funding. A reduction of $1.5 Million will seriously impact the continuation of Lewis programs for lead-based paint, noise exposure management and asbestos management. The Environmental Management Office will work with our customers and stakeholders during FY 1999 to ensure that EMO's and other organization's budgets for FY 2000 and beyond adequately fund environmental compliance. Details are presented in Section 6.5.

1.7 PROCESSES/ACTIVITIES FOR SPECIAL ATTENTION

In response to the Code Q memorandum of April 2, "Annual Operating Agreements (AOA's) Guidance", this section presents the general implementation philosophy for processes/activities designated for special attention. Separate FTE and cost estimates are not supplied for these functions. Expenditures are included in the line items for the principal program activities and functional processes.

1.7.1 RISK MANAGEMENT

Risk Management is the responsibility of all Lewis Research Center Programs/Projects. OSEMA will assist these Programs/Projects in the specific application(s) of NPG 7120.5A requirements and the detailed guidance provided in NASA Headquarters document entitled, "*Safety and Mission Assurance Risk Management Guidance*" by providing a vast array of services. These services include consultation/facilitation for both top-level and detailed risk decision processes (including risk identification, analysis, planning, tracking, controlling and communication and documentation); training in the many applicable risk assessment/management tools; as well as detailed development of risk assessment data and metrics. These services will be applied/tailored as necessary, based on the respective Program/Project's level of programmatic and safety risk.

1.7.2 SOFTWARE ASSURANCE

Software Product Assurance (SPA) covers software development from conception through delivery. This includes the assurance of software tools and simulators created to develop, verify or validate software and hardware used in mission critical projects and critical facilities. All software developed and managed at Lewis, as well as software used to develop, verify, and validate medium to critical control software or hardware, must be assessed for level of assurance to be applied. Software assurance efforts must be applied to high and critical control levels of software; medium and low control levels will only be considered on an as needed or desired basis. The exact tasks and analyses to be performed, as well as who has the responsibility to perform them, on any one project or area are determined by the level of control agreed upon by Project Management with input from the Software Lead and the Software Product Assurance Lead. Once determined, along with the appropriate level of control, the necessary software assurance tasks and level of effort are documented within a Project or Program Product Assurance Plan(s). The SPA function is a resource for information, advice, and analysis for both the software development process and software management procedures, and provides independent reporting on the quality, reliability, and safety of software.

1.7.3 MISHAP REDUCTION

It is the Center's philosophy that mishap reduction is strongly influenced by the proper determination of the potential risk associated with the activities that take place at LeRC. Once the risks are assessed, processes, systems and/or procedures are modified to reduce or eliminate these risks. With the elimination or reduction of risk, the probability of a mishap is greatly reduced or eliminated. This Risk Management philosophy is derived from elements of the NASA Administrator's
and is one of the Objectives outlined in the LeRC Strategic Implementation Plan (Lewis Objective 12). Risk Management principles are applied to all operations that either take place at LeRC or are related to projects/programs where LeRC personnel are involved. This proactive approach to mishap reduction is the main reason that the incident rate at LeRC is below plan every year.

1.7.4 TRAINING

OSEMA provides web based training for all SMA professionals through the Professional Development Initiative; available at: http://Solar.msfc.nasa.gov. Provisions are made for developing, institutionalizing, utilizing, and continually improving a comprehensive and documented training and career development program. Each staff member plans a program of study to develop their skills using the Individual Development Program which is reviewed and approved each year as part of the Performance Review process.

1.7.5 ISO 9001

OSEMA supports the ISO certification initiative at several levels across the Laboratory. The OSEMA Director is a member of the Lewis ISO Advisory Board that is responsible for the oversight of the certification process and the development of the Business Management System (BMS), the ISO Compliance System. In support of the BMS, OSEMA is responsible for the development of several Center level system process documents; Risk Management, Product Assurance, Preventive and Corrective Action, Internal Quality Auditing (post Registration), and Institutional Safety, Environmental Compliance, Security, and Emergency Preparedness Planning.

Support to the ISO Project Office for the initial audit of the Center involves participation of OSEMA personnel as lead auditors. The level of support for the ISO activity will rise over the course of the year as OSEMA prepares to assume responsibility for the entire post certification audit process when the ISO Project Office is disbanded after registration in FY 1999. We are leading the establishment of the internal audit system and anticipate receiving on-going contractor support for this activity, primarily to handle administrative functions.

Each Office is developing system level process documents and work instructions for their respective responsibilities. They are also supporting development, documentation and implementation for several other Center-wide processes, including; Software Development and Software Quality, Metrology, NPD 7120.4A Implementation, Configuration Management, and Receiving. Internally, the Quality Management Office has assigned one person to coordinate the ISO activities of OSEMA.

2.0 OSEMA MANAGEMENT OPERATIONS (OMO/0500)

The Management Operations group manages the Research Operations Support (ROS), Program Support (PS), NASA Headquarters Code Q and R funding, and the CoF funding for the entire OSEMA Organization. In addition, personnel actions, training, travel and overtime are managed by this group. Personnel actions include promotions, transfers, and interim changes to employee status. Personnel records are maintained for all the Divisions. Training actions are processed for the staff and coordinated with the Training Office. Travel requirements for the staff are projected each year for all programs and monitored by Division. Labor charges are reviewed every pay period for each Program and Division. Cumulative hours are reviewed to compare total hours expended by each Division with the hours charged to programs.

Functional Activity Summaries that detail activity planning are on Pages 1-2 through 1-5 of Appendix 1. A Resource Summary for FY99 OMO operations is depicted in Figure 2.0 in Appendix 2. Out-year estimates are found in Figure 3-2 of Appendix 3.

2.1 CODE Q MANAGEMENT

A number of Code Q Technical Plans (TPs) have been submitted for FY99. These Technical Plans include UPN's: 323-08, 323-27, 323-29, 323-71, 323-78, 323-94 and 323-97. The Technical Plans support Software Development, Risk Management, International Space Station Independent Assessment, and other technology initiatives. Additional Technical Plans support the activities of other Lewis organizations in Electronic, Electrical, and Electromechanical (EEE) Parts and Packaging. Most Procurement actions originate in 0500, while all requests are approved based on authority received from fund sources. Costs are projected to meet the current year costing requirement of 80 percent by September 30. Staff Management of technical professional development, engineering policy, and customer interfaces is also provided by OMO.

2.2 ROS/PS MANAGEMENT

The ROS/PS budget supports administrative staff and technical support for the Office, along with Purchase Goods and Services (PG&S). Purchase requisitions generally originate within OMO and are processed through the purchase request system to the Acquisition Division. Research Operations Support (ROS) and Program Support (PS) funding must be obligated by fiscal year end for current funding. The funding levels are described in Appendices 2 and 3.

2.3 CODE R MANAGEMENT

Code R funding supports aeronautics projects in meeting security requirements for protection of information assets and resources. In addition, Code R funding is provided to support environmental activities in the areas of asbestos abatement, lead paint abatement, and noise control projects.

2.4 CoF MANAGEMENT

Funding requirements are coordinated with NASA Headquarters Code JE that support environmental activities relating to remedial investigation/feasibility studies and remedial design.

2.5 OMO METRICS

1. Cost 80 percent in current fiscal year for Code Q funds.
2. Obligate 100 percent in fiscal year for ROS and PS funds.
3. Cost 83 percent in current fiscal year for Code R funds allocated to Environmental Office.
4. Obligate 90 percent in current fiscal year for CoF funds.
5. No greater than 5 percent difference between planned travel and actual cost on a quarterly basis.
6. Maintain 85 percent of training budget allocated for in-house skill development versus advanced degrees.

3.0 PROJECT ASSURANCE OFFICE (PAO/0510)

The Project Assurance Office activities are described in this portion of the LeRC OSEMA AOA. Project Assurance provides SMA engineering support to Lewis projects and to the institution. The SMA key activities and associated processes for PAO are:

Aeronautics, Space and Assurance Engineering:

- Risk Management
- Project Assurance
- Safety
- Materials and Processes
- Quality Assurance
- Reliability and Maintainability
- Software Product Assurance

Functional Activity Summaries that detail activity planning are on Pages 1-6 through 1-10 of Appendix 1. The Resource Summary for PAO operations for FY99 is depicted in Figure 2-1 of Appendix 2. Out-year resource estimates can be found in Figures 3-3a, 3-3b of Appendix 3.

3.1 AERONAUTICS

Defined support to the Aeronautics Directorate in FY99 will be increasing. Recent dialogue with Aeronautics senior management has resulted in additional PAO support for the Subsonic System Office, High Speed Systems Office, and the recently formed Aviation Safety Office. These activities will be developed and coordinated primarily by the OSEMA Program Assurance Managers through participation on program working groups and committees. These efforts, supported by civil servant staff, are currently at a level of 1.2 FTE, with increases to 3.65 FTE in FY99 and 4.85 FTE in FY00. In addition to this program support, OSEMA has worked with the Subsonic System and High Speed Systems Offices to develop new Code Q technical proposals submitted in the 323-29 and 323-71 technical areas. The OSEMA will develop efficiencies through its process evaluation and optimization initiative which will provide additional in-house SMA resources. No funds have been identified for SSC support at this time, but the possibility exists that funding could be made available based on future project needs. Additionally, OSEMA has hired system safety engineers through laterals from Code M Centers and other Directorates at LeRC.

The critical deliverables for FY99 are:

1. Risk Management Plan for HSR.
2. Project Assurance Plan for the Aeronautics Programs.
3. Additional Code Q Technical Proposals.

3.2 SPACE

3.2.1 MICROGRAVITY SCIENCE

OSEMA plans to effectively support a variety of LeRC Phase C/D/E flight projects in FY99 (see below). In connection with this support, our customer (i.e., Microgravity Science Division) has estimated a need to utilize approximately 7.5 FTE OSEMA civil servants and has committed to make a minimum of $550K available (or to fund approximately 6 contractor FTEs). Contingent upon approval of an augmented budget for the STS-107 mission, the customer has also agreed to provide an additional $99.5K of funding, if necessary.

Flight projects to be supported in FY99 include the following:

1. Combustion – Candleflames-2 (CFM-2), Combustion Module-2 (CM-2), Droplet Combustion Experiment-2 (DCE-2), Front Interaction with Vortex Experiment (FIVE), Fiber Supported Droplet Combustion-3 (FSDC-3), Microgravity Smoldering Combustion Reflight Experiment (MSCRE), Spread Across Liquids (SAL), Smoke Points in Coflow Experiment (SPICE).
2. Fluid Physics – Colloidal Disorder-Order Transition-2 (CDOT-2) Colloidal Gelation-2 (CGEL-2), Extensional Rheology Experiment (ERE), Extensional Rheology Experiment/Glovebox (ERE-GBX), Gast (Glovebox Investigation), Physics of Colloids in Space (PCS), Critical Viscosity of Xenon-2 (CVX-2).
3. Microgravity Measurement – Microgravity Acceleration Measurement System (MAMS), Orbital Acceleration Research Experiment (OARE), Space Acceleration Measurement System for Free Flyers (SAMS-FF).
4. International Space Station – Fluids and Combustion Facility (FCF)

In addition to the above flight projects, OSEMA expects to provide a low level of concurrent engineering support to a number of microgravity projects in Phase A/B stages of development in anticipation that these project will eventually receive authorization to develop flight hardware. Included among these projects are the following: Binary-Component Droplet Combustion Experiment (BCDCE), Constrained Vapor Bubble (CVB), Cool Flames, Material Flammability, Microscale Hydrodynamics Near Moving Contact Lines (SCALE), Solid Inflammability Boundary At Low-Speed (SIBAL), Transition from Ignition to Flame Growth under External Radiation in 3-D (TIGER-3D) and others.

OSEMA is also working with our primary space experiments customer to initiate a new performance-based, prime contract in FY99. It is expected that the new prime contractor will become responsible for developing the Fluids and Combustion Facility and would also be assigned tasks to develop certain payloads and operational activities.

In supporting the prime contract OSEMA activities are expected to include conducting pre-award surveys of potential contractors and the implementation of a Surveillance Plan. The plan will require OSEMA to work with our customer to identify and perform surveillance activities to assess prime contractor performance, in an insight or oversight capacity, as appropriate.

In addition, OSEMA will continue to provide "in-line" support for in-house projects, as needed. This support is expected to include helping projects prepare and implement Risk Management Plans, to the extent OSEMA assistance is needed. Finally, OSEMA will retain the responsibility for independent assessment of the safety and risk status of flight projects and will provide that assessment to Lewis and Headquarters management, as requested.

The critical deliverables for FY99 include:
1. Surveillance Plan for Microgravity Research, Development and Operations Contract (MRDOC).
2. Pre-award survey(s) of potential MRDOC prime contractors.
3. Preliminary Risk Management Plan for Fluids and Combustion Facility.
4. Proposed Payload Safety Review Process for Fluids and Combustion Facility.

3.2.2 SPACE TECHNOLOGY

Support in the **Space Power and Propulsion** area for FY99 has been established at a level of 3 FTE. This will be provided by a work force made up of civil servants and support service contractors. The Program Assurance products and services being supplied in support of space technology projects include SMA support for Attitude Control and Energy Storage Experiments (Flywheels) that will fly on the ISS, Ion Engine Thruster Project, Plasma Contactor testing, and ISS integration support. Critical deliverables for FY99 will be risk management plans for each program.

PAO will provide the **Space Communications** program with 2.0 FTE level of support. The effort will be provided by a work force made up of civil servants and support service contractors. The Direct Data Downlink (D^3) project will primarily be the program supported by PAO. Risk management and safety plans will be the deliverables for this program in FY99.

Support to the **Expendable Launch Vehicle (ELV)** Program for FY99 is focused on the successful launch of the EOS AM-1 mission. This mission was originally scheduled to be launched in FY98, but problems with the spacecraft ground support software has caused a delay. This activity will be primarily supported by the civil servant work force at a level of .25 FTE. The transition of the ELV program to KSC will be made the beginning of FY99, and OSEMA support will be provided as required. The critical deliverable for FY99 is an EOS AM-1 Mission Assurance Summary.

Support to the **Space Transportation Program** for FY99 will be at a level of .25 FTE. OSEMA support will be focused on the Propellant Densification Project being designed, fabricated and tested here at LeRC. The effort will be provided by civil servants. A Risk Management and Product Assurance Plan will be the deliverable for this project.

3.3 ASSURANCE ENGINEERING

PAO will be involved in various activities to support **risk management** at the Center. Risk Management is the responsibility of all LeRC Programs/Projects. OSEMA will assist these Programs/Projects in the specific application(s) of NPG 7120.5A requirements and the detailed guidance provided in the NASA Headquarters document entitled, "

by providing a vast array of assurance services. These services

include consultation/facilitation for both top-level and detailed risk decision processes (including risk identification, analysis, planning, tracking, controlling and communication, and documentation); training in the many applicable risk assessment/management tools; as well as detailed development of risk assessment data and metrics. These services will be applied as appropriate, based on the respective Program/Project's level of programmatic and safety risks. Deliverables associated with this effort includes risk management plans for all new and existing programs, as appropriate, at NASA LeRC.

PAO is supporting the highly visible HEDS independent assessment activity with oversight and assessment responsibilities for the design, testing and fabrication of the Space Station Alpha electrical power system at Rocketdyne and its sub-contractors. In addition, Cleveland personnel will be providing safety and quality assurance oversight to the ISS thermal radiator tests to be performed at the Plum Brook Facility. These activities are supported by a total of 4.85 FTE civil servant and contractor personnel.

PAO support to Lewis facilities and in-house fabrication and testing, both in Cleveland and at Plum Brook includes welding engineering, product assurance, safety and risk assessment, and software quality assurance. Plum Brook support includes independent review of hazard analyses and the overall safety program, operational readiness reviews and test support.

3.4 PAO METRICS

1. Percent PAO Staff "Project Direct".
2. Percent on-time Project Assurance Plans completed.
3. Quarterly Customer Feedback Rating

4.0 QUALITY MANAGEMENT OFFICE (QMO/0520)

The Quality Management Office provides Quality Engineering, Quality Assurance, and Quality Management to aeronautics, space research and technology projects. The Quality Management Office also provides Safety and Mission Assurance (SMA) support directly to Lewis institutional activities. The QMO provides Materials and Processes support, and reviews and approves all Materials Usage Agreements (MUA), Materials Identification and Usage Lists (MIUL), and Materials Certification Letters in support of intercenter agreements with JSC, MSFC, and GSFC. The QMO will provide expertise in failure analysis of both electronic and mechanical components and systems. The Quality Management Office performs internal audits for the implementation and ongoing support of ISO 9001 and, through a support service contract, will implement and administer the preventative and corrective action system and database. The key activities and process for the Quality Management Office are:

Quality Engineering

- Matrix Support to Project Assurance Office/Projects
- Independent SMA Assessments.
- Facilities Evaluation.
- Failure Analysis (Electronic and Mechanical).
- Materials and Processes Review and Approval

Quality Assurance

- SMA Audit of Suppliers.
- Critical Test and Inspection Validation.
- Developing and Implementing Quality Activities.
- Maintenance of Quality Management Documents.
- Audits of LeRC non-OSEMA Quality Functions.

Quality Management

- Government-Industry Data Exchange Program (GIDEP)
- Lessons Learned Information System (LLIS)
- Achievement Recognition (QASAR) Management.
- Preventative and Corrective Action Systems
- Problem Reporting (PRACA)

Functional Activity Summaries that detail activity planning are on Page 1-11 through 1-13 of Appendix 1. The Resource Summary for QMO FY99 operations is depicted in Figure 2-2 of Appendix 2. Out-year resource estimates can be found in Figure 3-4 of Appendix 3.

4.1 QUALITY ENGINEERING

Quality Engineering is provided as an integral part of the SMA support to LeRC aeronautics and space research and technology products. The Quality Management Office uses the majority of the offices' human resources by matrixing them, through the Product Assurance Office, directly to aeronautics and spaceflight projects as Project Assurance Team leads or members. Quality Engineering provides contract review, specification development, requirement tailoring, and

general quality engineering expertise to these projects, as well as NDE guidance, fabrication guidance, and processing expertise. In addition, specific related engineering expertise exists in many specialized fields including: scanning electron microscopy analysis of both electronic and mechanical failures; electronic component design and fabrication; materials selection; materials processing, such as heat treatment, welding, and brazing; and composite fabrication in Kevlar and graphite/graphite. QMO also provides the management review and approval of MIULs and MUAs along with the maintenance of the intercenter agreements.

The critical deliverables for FY99 include:
1. Failure Analyses including recommendations and corrective actions.
2. Technical evaluations based on engineering and standard practices.
3. Materials and Processes Review and Approvals for Space Experiments.

4.2 QUALITY ASSURANCE

The Quality Assurance activity provides surveys, facility assessments, vendor surveillance, and product oversight and leads OSEMA in implementing ISO within OSEMA. The Quality Assurance activity routinely surveys the Center for adequate process management and product assurance controls. It supports the implementation of Internal Audits for ISO 9001 and will maintain the Internal Audit function at LeRC after ISO registration. QMO verifies that product design requirements are met and validates testing, critical inspections, and corrective actions. Any number of facility evaluations are performed or verified including: hazards controls, process capabilities, compliance to safety, and/or environmental requirements.

The critical deliverables for FY99 include:
1. Quality surveys/audits and reports.
2. ISO 9001 Center-level Procedure for Preventative and Corrective Action.

4.3 QUALITY MANAGEMENT

QMO provides several unique risk management services. These include the , a NASA/DOD sponsored activity that facilitates the voluntary exchange of technical data related to parts, components and materials; the , a system that collects and makes available for use by all who may have benefit from the experience of others, the lessons learned from almost forty years in the aeronautics and space business. In addition, the Quality Management Office maintains a Problem Reporting and Corrective Action System which provides project managers, and others, with timely and relevant data used to assess project risk and progress. The QMO is developing the Center-wide for Lewis' ISO 9001 implementation.

QMO also administers the , a program that recognizes accomplishments in quality assurance disciplines of both civil servants and contractors.

The critical deliverables for FY99 include:
1. Quarterly (and Best of the Best annual) QASAR selection and award.
2. GIDEP Reports including analysis when appropriate.
3. Quarterly PRACA Report to Microgravity Project Managers.

4.4 QMO METRICS

1. Requirements Review Cycle.
2. Percent of scheduled annual audits completed.
3. Percent of planned QASAR Awards presented.

5.0 LeRC SAFETY OFFICE (LSO/0530)

The LeRC Safety Office provides safety engineering and technical support to all LeRC activities. The support is provided based on a comprehensive Safety Program, which has been defined for LeRC. The Program additionally ensures that the Center follows recognized safety codes and standards in all areas of operation, including the modification to, construction of, or demolition of Center facilities. The key activities and processes for the Lewis Safety Office are:

Facility Support
- Facilities Inspections
- Executive Safety Board
- Safety Committees
- Incident Reporting Information System
- Mishap Reduction
- Mishap Investigation
- Safety Permit
- Incident Response

Construction Support
- Site Inspections
- Project Reviews
- Mishap Reduction
- Mishap Investigation

Technical Support
- Engineering
- Reviews
- Plans

Programs/Processes
- EPP Support
- Safety Training
- Quality Program (BMS/ISO 9001)
- Document Management
- Regulatory Compliance
- Lewis Safety Manual

These programs are described in greater detail in the following sections.

Functional Activity Summaries that detail activity planning are on Page 1-14 through 1-17 of Appendix 1. The Resource Summary for ISO FY99 operations is depicted in Figure 2-3 of Appendix 2. Out-year resource estimates can be found in Figures 3-5a, 3-5b of Appendix 3.

5.1 FACILITY SUPPORT ACTIVITIES

The LeRC Safety Office (LSO) organization supports the Center's operations by coordinating day-to-day safety program activities, conducting or coordinating safety training programs, and developing and communicating safety policy. Facility support safety activities are based upon, but

not limited to, the requirements of 29 CFR1910, "Occupational Safety and Health Standards". It also supports first response actions to incidents or accidents within LeRC. LSO conducts mishap investigations as part of the Center's mishap prevention effort.

The Safety Program is based upon the Risk Management principles outlined in NASA Policy Guide NPG7120.5a. The Safety Committees (SC's) provide third party review of projects and programs support activities at LeRC. Along with the Executive Safety Board (ESB), which defines the guidelines by which to assess and accept risk, and the Area Safety Committees, the Safety Office manages risks at the Center associated with project and program support.

The Safety Office provides the following facility support services: Facility inspections, including but not limited to, lockout/tagout, shop safety, lab safety, personal protective equipment, confined space entry, cranes/lifting devices, mishap/incident investigation and reporting, vehicle and pedestrian safety; support to the ESB and SCs; provides incident response; and manages the Safety Permit Program.

The critical deliverables for FY99 are:
1. Continued performance of facility inspections on on-going and annual basis
2. Review of the Center's Risk Management Policy and application to the Safety Office for Facility Support Activities

5.2 CONSTRUCTION SUPPORT ACTIVITIES

The LeRC Safety Office organization supports the Center construction activities by coordinating day-to-day safety program activities, conducting or coordinating safety training programs, and developing and communicating safety policy. Construction Support safety activities are based upon, but not limited to, the requirements of 29 CFR1926, "Occupational Safety and Health Administration Safety and Health Regulations for Construction".

The Safety Program is based upon the Risk Management principles outlined in NASA Policy Guide NPG7120.5a. The Area Safety Committees provide third party review of construction projects and programs at LeRC. Construction programs include the modification to, construction of, or demolition of the Center's facilities. Along with the Executive Safety Board (ESB) and the Area Safety Committees, the Safety Office manages risks at the Center associated with construction projects and programs.

The Safety Office provides the following construction support services: Construction inspections, including but not limited to, lockout/tagout, construction safety, personal protective equipment, confined space entry, cranes/lifting devices, mishap/incident investigation and reporting, vehicle and pedestrian safety; and conducts reviews of safety requirements for each project.

The critical deliverables for FY99 are:
1. Continued performance of construction inspections on an on-going basis
2. Review of the Center's Risk Management Policy and application to the Safety Office for Construction Support activities

5.3 TECHNICAL SUPPORT ACTIVITIES

The LeRC Safety Office organization supports the Center's on-going activities by supporting all facility and construction support activities. It coordinates the technical review of safety, engineering and procurement deliverables, and participates on the Center's various boards and committees to maintain the Safety Office's presence at LeRC and with local regional safety communities. Technical support activities are based upon, but not limited to, the government and industry codes, regulations, and standards that apply to the technical discipline under consideration.

The Safety Office's technical support is also based upon the Risk Management principles outlined in NASA Directive 7120.5a. The individuals in the Safety Office who provide technical support perform third party reviews for all on-going facility and construction activities, programs and processes at LeRC. Such reviews provide an independent and impartial perspective on technical safety and engineering requirements. Along with the Executive Safety Board (ESB) and the Area Safety Committees, the Safety Office manages risks at the Center associated with technical support activities.

The Safety Office provides the following technical support services: Risk Assessments, Hazard Analyses, engineering reviews (fire protection/life safety, electrical, mechanical/HVAC, chemical/process/materials), and interdisciplinary reviews (procurement deliverables, safety permits, confined space permits).

The critical deliverables for FY99 are:

1. Continue Fire Life Safety Facilities Assessments
2. Functional Management Reviews
3. Complete Audit 98 Actions

5.4 PROGRAMS/PROCESSES

The LeRC Safety Office organization supports many on-going programs/processes at the Center. These programs/processes, although not directly related to the institutional safety activities that are performed by the Safety Office in support of facilities and construction activities, are an integral part of the Safety Office daily operations. Additionally, these programs will not only improve the efficiency and effectiveness of the Safety Office's operations, but will also improve the information management needs to the Safety Office's customers and partners.

The Safety Office provides support for the following programs/processes: it ensures compliance with all OSHA requirements; it provides safety training, safety alert bulletins, safety awareness programs, and safety award recognition; it manages the Lewis Safety Manual, including development/revision, configuration control; the LSO is developing procedures and uses interactions in response to the LeRC Business Management System (BMS) and ISO 9001 requirements, which includes a Document Management System; it participates in community outreach activities including Engineering Week, Board of Education Career Programs, and Speakers' Programs, and supports ad hoc committees and panels.

The critical deliverables for FY99 are:

1. Review every safety program in effect at LeRC to ensure effective and adequate safety support for the Center's missions and goals, and to appropriately allocate its resources
2. Complete review and updating of the Center's Pre-fire plans
3. Safety Training/Awareness programs/activities
4. Preparation and quarterly distribution of a LeRC Safety Bulletin
5. Prepare and present the annual Safety Awareness Program
6. Present annual Safety Recognition Award(s)
7. Develop Safety Office procedures and work instruction consistent with the intent of the BMS and ISO 9001 requirements.
8. Develop and implement a document management system.
9. Develop a mandatory safety training matrix for the Safety Office personnel – percent of attendees at mandatory safety training activities (quarterly basis)
10. Review and updating of the Lewis Safety Manual

5.5 LSO METRICS

1. Incident Rates versus Goals
2. Percent Completion of construction inspections (quarterly basis)
3. Percent Completion of Functional Management Reviews (quarterly basis)
4. Percent Completion of Pre-Fire Plans

6.0 ENVIRONMENTAL MANAGEMENT OFFICE (EMO/0540)

The Environmental Management Office has the responsibility to ensure that environmental liability is minimized. EMO supports the LeRC mission by fostering a safe and healthful workplace for its employees and ensuring that operations are protective of the community and the environment. EMO provides products and services to our customers at Lewis Research Center and at the Plum Brook Station. The key activities and process for the Environmental Management Office are:

Remediation
- Environmental Remediation
- Reactor Study

Abatement
- Construction Support
- Asbestos
- Lead Paint
- Noise

Compliance
- Environmental Compliance
- Industrial Hygiene
- Health Physics
- Chemical Management
- Chemical Sampling and Analysis
- Division Support

Functional Activity Summaries that detail activity planning are on Page 1-18 through 1-20 of Appendix 1. The Resource Summary for EMO FY99 operations is depicted in Figure 2-4 of Appendix 2. Out-year resource estimates can be found in Figure 3-6 of Appendix 3.

6.1 REMEDIATION

FY99 Projects include remedial action at Lewis and remediation of underground storage tank sites at Plum Brook. The type of remediation needed depends on the results of studies currently underway. Funding is from the Environmental Compliance and Restoration portion of the CoF program.

In FY99, the critical milestones/deliverables are:
1. Ensure project milestones for Phase 2 Remedial Investigation/Feasibility Study (RI/FS) are met.
2. Complete study for remediation of underground storage tank areas at Plum Brook.
3. Complete a study of alternatives for the decommissioning of the Plum Brook Reactor.

The amount of funding required for future remediation activities depends on the results of studies now underway. We believe we have budgeted funds sufficient to adequately undertake future cleanups, but there is a good deal of uncertainty associated with these estimates.

6.2 ABATEMENT

Abatement products and services in FY99 included noise, asbestos, and lead. Most of these abatement projects were funded through Code R. Some smaller abatement clean-ups were funded through our functional budget (ROS & PS).

In FY99, the critical milestone/deliverable is to complete all projects on time and within allocated budgets.

There is more noise control requirement abatement activities than can be addressed with the available funding. These will have to be delayed to future fiscal years if additional funds are not made available.

6.3 COMPLIANCE

Environmental compliance products and services include serving as a liaison between LeRC and the external regulating agencies, and actively participating with all LeRC organizations in planning, conducting, and monitoring activities which could have environmental implications. Also included is the monitoring of fuel storage tanks, processing and maintaining air and water permits, performing environmental site assessments, and lending technical assistance to ensure activities conducted at the facility are accomplished in compliance with Federal, State, and Local regulations.

In FY99, the critical milestones/deliverables are:

1. Compliance with wastewater discharge permit limitations.
2. Continued reduction of the amount of hazardous waste generated.

6.4 EMO METRICS

1. Percent of reduction in total hazardous waste
2. Proficiency ratings for lab analysis
3. Percent of compliance with wastewater discharge permits
4. Percent reduction in hazardous chemical releases

6.5 ISSUES AND CONCERNS

Due to the loss of $1.5 Million dollars of Code R Environmental Compliance funding from headquarters in FY 2000, the out-year budget projections for EMO do not represent adequate funding of key environmental programs at Lewis. Code R Environmental Compliance funds are an important revenue source that funds essential risk reduction and compliance programs, including:

1. The Center's Lead-Based Paint program which identifies and abates deteriorating lead-based paint on facilities and structures that present both a health and environmental hazard. The Icing Research Tunnel, for example, is scheduled for a lead remediation in FY99 which will allow for badly needed tunnel modifications and repairs. Other FY99 projects will address deteriorated paint on gas storage vessels, and in work areas.

2. The Center's Noise Exposure Management program. Loss of a Code R funding source will cripple noise control projects that ensure employee protection from hazardous noise levels. Because of the phased approach to the program and to individual projects, the loss of funding will result in the cancellation of numerous projects that are currently in progress and on which considerable funds have been already expended.
3. Asbestos management programs that support facilities operations, facilities maintenance, and research operations. The loss of this funding would bring a halt to our Base-wide survey for the identification and quantification of asbestos and lead containing building materials. These funds are also used to cover asbestos abatement and emergency spill clean up needs.

The Environmental Management Office will work with our customers and stakeholders during FY 1999 to ensure that EMO's and other organization's budgets for FY 2000 and beyond adequately fund environmental compliance. Failure to do so will produce unacceptable risk and potential compliance problems.

7.0 SECURITY MANAGEMENT OFFICE (SMO/0550)

The Security Management Office provides security services and support to Lewis projects and the institution, including the Plum Brook Station. The mission of the Security Management Office is to provide a safe and secure environment for everyone who works at or visits the Lewis Research Center, and to insure that the assets and information are protected from harm. These services are provided to every employee, project, and organization at Lewis and Plum Brook Station. Security is provided across the entire LeRC operation, and is a large effort supported by institutional funding. Direct project support is funded by the requesting organization. These services are consistent with security policies set forth in applicable laws and regulations. The following are the key activities and processes for the Security Management Office:

Physical Security
- Center Access Control
- Traffic Management
- Facility Security
- Patrols and Incident Responses
- Investigations

External Physical Security
- Emergency Preparedness
- Emergency Response Exercises
- Coordination with Local County, State and Federal Agencies

Information Security
- Security Database Development and Maintenance
- Unclassified Information Protection
- Project Security Management
- Classified Information Protection
- Threat Program/Agency Automated System Hub
- Classified Contract Security

Personnel Security
- Security Education and Awareness Training
- Suitability Investigations
- Security Clearances
- Serious Misconduct Resolution

Information Technology Systems Security
- Unclassified Computer Security
- Classified Computer Security
- Communications Security Management
- Agency Expert Center; IT Security Training

Functional Activity Summaries that detail activity planning are on Page 1-21 through 1-27 of Appendix 1. The Resource Summary for SMO FY99 operations is depicted in Figure 2-5 of Appendix 2. Out-year resource estimates can be found in Figure 3-7 of Appendix 3.

7.1 PHYSICAL SECURITY

Physical security projects and services include conducting reviews of Lewis designated facilities in which classified or sensitive research or testing is being conducted. The reviews are designed to ensure compliance with national and NASA regulations and, through process verification, that access control systems are efficient, effective, and user friendly. SMO also conducts incident investigations in a thorough and timely manner ensuring corrective action is taken to prevent future occurrences to the extent practical, and provides timely and effective response to incidents and emergencies. The SMO is also responsible for maintaining vehicle traffic control on the Center.

FY99 planned critical projects/deliverables:

1. Implementation of Access Control System (ACS) in various buildings based on an approved and prioritized funding plan.
2. Review selected facilities for compliance with security regulations.
3. Develop plan with funding requirements and milestones to study, upgrade and integrate security systems within the Central Dispatch and Alarm Monitoring Station.

7.2 EXTERNAL PHYSICAL SECURITY

The Security Management Office personnel support the various boards and committees necessary to maintain the Lewis presence in, and impact on, NASA and the local and regional emergency planning community. This includes participation on the NASA Headquarter's Emergency Preparedness Committee and with local, county and state emergency management agencies. Community outreach includes: Boards of Education career programs, information programs and speaker's request, and ad hoc committees and panels. The Office also manages the Lewis Emergency Preparedness and Response activities through the coordination of three municipal fire and emergency response operations (Cleveland, Brook Park, and Fairview Park), and other federal, county and state agencies, which include:

Emergency Preparedness
- Emergency Preparedness Plan
- Community Agreements and Support Activities

Emergency Response
- Incident Command
- 24-hour Emergency Coordination

Community Response
- Emergency Planning Committees

Critical Deliverables for FY99 are:

1. Signed Community Support Agreements.
2. Community Review of LeRC Emergency Requirements.
3. Community Participation in Practice Exercises.
4. Complete LeRC Emergency Preparedness Plan Annexes.

7.3 INFORMATION SECURITY

Information security involves the identification of measures and countermeasures for the protection of classified and sensitive information.

FY99 planned critical projects/deliverables:

1. Complete process for servicing other centers with hookup to Intelink-X.
2. Conduct assessment of Lewis Critical Technologies.

7.4 PERSONNEL SECURITY

Personnel security services and products include processing Government and contractor employees for background investigations, security clearance actions, and serious conduct issue resolutions.

FY99 completed projects/deliverables:

1. In conjunction with the Office of Human Resources, establish a program to designate persons in sensitive positions.

7.5 INFORMATION TECHNOLOGY SYSTEMS SECURITY

Information technology systems security includes assessments of computer systems to identify vulnerabilities and establish effective countermeasures to deal with those vulnerabilities or threats to the system. This is done in close coordination with systems and data owners to assure that information processed, stored, or transmitted in automated systems is protected in accordance with federal regulations.

FY99 planned critical projects/deliverables:

1. Conduct IT system penetration test and/or vulnerability assessments in accordance with established schedule and process.
2. Certify and accredit all classified computer systems.
3. Develop process for including computer security into the life cycle of an information technology system supporting administrative and research projects and programs.

7.6 SMO METRICS

1. Percent reduction in reported security incidents
2. Percent increase in briefings, courses, and awareness information delivered
3. Percent increase in information technology systems vulnerability assessments and penetration tests.

LEWIS RESEARCH CENTER

OSE&MA AOA - FY99

APPENDIX 1

FY99 FUNCTIONAL ACTIVITY SUMMARIES

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
OSEMA MANAGEMENT OPERATIONS (0500)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: CODE Q MANAGEMENT

Technical Plans (TP) are developed each year by 0500 personnel and other Directorates at the Center. Projects approved by Code Q receive funding. Funding is received at the overall level and allocated to projects where costs are in close alignment with obligations. Code Q has mandated 80% cost and 100% obligation requirements for current year funds. More than half the funds support activities within the 0500 organization. The remaining funds support activities in 5000, 6000 and 7000 organizations.

METRIC(S):	GOAL(S)
1. Percent funds costed 2. Percent funds obligated	1. 80% costed in current FY 2. All obligated in current FY
TASK(S):	CUSTOMER(S):
1. Code Q cost performance	1. TP Managers 2. Code Q Financial Management

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
OSEMA MANAGEMENT OPERATIONS (0500)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: ROS/PS MANAGEMENT

Funds are allocated to 0500 activities in Institutional Safety, Project Assurance, Quality Management, Environmental and Security. Funds are distributed from two sources: Research Operations Support (ROS) and Program Support (PS). The majority of commitments provide Support Service Contractors for the organizations. Funds are committed early in the fiscal year and closely tracked to cost projections for the offices.

METRIC(S):	GOAL(S):
1. Percent obligated	1. All obligated in current FY
TASK(S):	CUSTOMER(S):
1. Functional budget (ROS & PS)	1. Staff 2. 0200/Resource Analysis and Management Office

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
OSEMA MANAGEMENT OPERATIONS (0500)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: CODE R MANAGEMENT

Requirements are identified by the staff of the Environmental Management Office (EMO) with collaboration and input from other OSSEMA offices, Facilities Management and other groups. The requirements are submitted in spreadsheet format to NASA Headquarters Code R, which allocates available funds to the Code R Centers. Once funding is received, projects are initiated, assigned to a project manager, and tracked to completion. Security receives funding to provide specialized security services to High Speed Research (HSR), Advanced Subsonic Technology (AST), and special project offices.

Under Full Cost Accounting, all project requests, from whatever source, are processed through the Code R "POP" call to assure allocation to the appropriate cost center.

METRIC(S):	GOAL(S):
1. Percent costed	1. 83% costed in the current FY
TASK(S):	**CUSTOMER(S):**
1. Asbestos abatement process 2. Lead paint abatement process 3. Noise control projects 4. Specialized security services	1. Center Management 2. 0200/Resource Analysis and Management Office 3. Aeronautics

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
OSEMA MANAGEMENT OPERATIONS (0500)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: CoF MANAGEMENT

Environmental Compliance and Restoration

Requirements are identified by a planning process that includes appropriate personnel from facilities, Plum Brook, and the Environmental Management Office (EMO). The requirements are communicated to NASA Headquarters, Code JE, and funding requests are submitted when projects are ready to move forward. Once funding is received, projects are managed either by EMO or by the Facilities and Test Engineering Division.

METRIC(S):	GOAL(S):
1. Percent obligated	1. 90% obligation in the current FY
TASK(S):	CUSTOMER(S):
1. Complete remedial investigation/feasibility study 2. Prepare remedial design 3. Contract for remedial action	1. HQ/Code JE 2. 0200/Resources Analysis and Management Office

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
PROJECT ASSURANCE OFFICE (0510)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: AERONAUTICS

OSEMA provides program/project support to Aeronautics activities at Lewis Research Center and its contractors. Lewis activities include developing hardware and software to conduct aeronautics propulsion research. To reduce risk and help assure safety and mission success, OSEMA provides support in several disciplines. At this time, these include risk management, system safety and reliability. OSEMA has been successful in working with the Aeronautic Directorate to initiate new program assurance activities for the HSR, AST, Aviation Safety, Base, and HPCC programs.

RISK OF DOING NOTHING:

Not performing assurance for Aeronautics projects will increase risk of mission failure, including the possibility of injury to personnel or damage to test hardware and test facilities.

METRIC(S):

1. Percent Aeronautics Project Assurance Plan (PAP) completed
2. Percent HSR risk management plan completion.
3. Percent AST risk management plan completion.

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GOAL(S):

1. Complete Aeronautics PAP
2. Maintain Aerospace Code Q technical proposal schedule.

TASK(S):

1. Generate Aeronautics product assurance plan
2. Generate HSR risk management plan
3. Generate AST risk management plan
4. Develop new Code Q technical proposals

CUSTOMER(S):

1. NASA Headquarters Code Q & R
2. Director, Aeronautics Directorate
3. Chief, AST Project Office
4. Chief, HSR Project Office
5. Chief, Aviation Safety Office

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
PROJECT ASSURANCE OFFICE (0510)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: SPACE - MICROGRAVITY SCIENCE

OSEMA provides Program/Project Assurance support to space experiment development activities at Lewis Research Center and its contractors. These development activities include creating hardware and software to conduct combustion/fluid physics microgravity experiments or make microgravity acceleration measurements on-board sounding rockets, the Space Shuttle, MIR or the International Space Station.

To reduce risk and help assure the safety and success of Lewis space experiments, OSEMA provides support to flight projects in several SR&QA disciplines. These include system safety, materials and processes, quality assurance, reliability/maintainability, and software product assurance.

OSEMA's standard work process with space experiment developers includes a Product Assurance Plan based on the Lewis *Standard Assurance Requirements and Guidelines for Experiments* (SARGE). The Plan defines the work to be accomplished to help ensure that hardware/software delivered for flight is safe and has a reasonable expectation of meeting performance requirements and achieving science objectives.

As Lewis moves toward the implementation of performance-based contracts, OSEMA is revising its approach to dealing with contractors developing space experiments. In this regard, OSEMA is working with the Lewis Microgravity Science Division (MSD) to prepare the RFP package (scheduled for release in FY-99) for a new, overall space experiment development prime contract: the Microgravity Research, Development and Operations Contract (MRDOC).

As part of this effort, OSEMA is working with MSD to develop a Surveillance Plan for MRDOC. In addition OSEMA plans to conduct pre-award survey(s) of the potential contractor(s) to support the Source Evaluation Board selection process and enable a final tailoring of the Surveillance Plan to be consistent with contractor capabilities.

Finally, OSEMA expects to work with the Fluid/Combustion Facility (FCF) project to consider alternatives and plans for an integrated safety review process for the mission. In addition, OSEMA may explore the potential for safety agreements with other NASA Centers, where such agreements would streamline the review process without compromising safety.

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
PROJECT ASSURANCE OFFICE (0510)
FY99 FUNCTIONAL ACTIVITY SUMMARIES ACTIVITY

MICROGRAVITY SCIENCE (Continued)

RISK OF DOING NOTHING:

The risk in not performing Program/Project Assurance for Lewis space experiments (and the surveillance of payload development performance-based contractors) is an increased probability of mission failure, including an increased possibility of death or serious injury to astronauts/other personnel or damage to the launch vehicle, flight hardware or other equipment.

METRIC(S):

1. Percent of successful flight experiments
2. Percent of planned cost
3. Percent complete for MRDOC Surveillance Plan

GOAL(S):

1. All flight experiments actively supported by OSEMA rated at least "successful".
2. Actual OSEMA resources used do not exceed plan by more than 5%.
3. Draft Surveillance Plan released with; Pre-award survey(s) of potential contractor(s) completed before contractor(s) selected.

TASK(S):

1. Provide required support to space experiment flight projects in the areas of system safety, materials and processes, quality assurance, reliability and maintainability, EEE parts and software product assurance.
2. Complete draft of Surveillance Plan for Micro-gravity Research, Development and Operations Contract (MRDOC).
3. Conduct pre-award survey(s) of potential MRDOC contractor(s) to support SEB source selection process and tailoring of MRDOC Surveillance Plan.
4. Develop preliminary Risk Management Plan and proposed integrated payload safety review process for Fluids and Combustion Facility. (Explore potential safety review agreements with other NASA Centers.)

CUSTOMER(S):

1. Director, Space
2. Microgravity Science and other LeRC Divisions with Space Experiments:

    - Division Management
    - Project Managers

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
PROJECT ASSURANCE OFFICE (0510)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: SPACE - SPACE TECHNOLOGY

OSEMA provides program/project support to Space Technology activities at Lewis Research Center and its contractors. These activities include developing hardware and software to conduct space flight experiments. To reduce risk and help assure safety and mission success, OSEMA provides support in several disciplines. These include system safety, materials and processes, quality assurance, reliability/maintainability, and software produce assurance. OSEMA provides SMA support to the Space Power and Propulsion, the Space Communications, the Expendable Launch Vehicles (ELV), and Space Transportation Programs at Lewis.

RISK OF DOING NOTHING:

Not performing program/project assurance for these activities will increase probability of mission failure, including the possibility of death or serious injury to astronauts/other personnel or damage to the launch vehicle, flight hardware or other equipment.

METRIC(S):	GOAL(S):
1. Percent customer satisfaction rating	1 95 percent customer satisfaction rating
TASK(S):	**CUSTOMER(S):**
1. Provide required support to space technology flight projects in the areas of system safety, M&P, QA, R&M, and SPA. 2. Define proper SRM&QA requirements and specification for flight flywheel unit. 3. SMA support of EOS-AM launch. 4. SMA support for the Direct Data Distribution (D^3/ Phased Array Antenna.	1. Codes Q & M 2. Director, Space 3. Chief, Power Systems Project Office 4. Chief, Space Communications Office 5. Chief, Launch Vehicle and Space Transportation Project Office

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
PROJECT ASSURANCE OFFICE (0510)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: ASSURANCE ENGINEERING

Independent assessment of the International Space Station Power Systems design, test, and fabrication at Rocketdyne and SMA support to the testing performed at the Plum Brook facilities.

RISK OF DOING NOTHING:

Not performing program assurance activities will increase probability of mission failure.

METRIC(S):	GOAL(S):
1. Percent of successful Plum Brook Facility Tests. 2. Customer satisfaction rating.	1. Plum Brook Facility tests are all successful. 2. 95 percent customer satisfaction rating.
TASK(S):	CUSTOMER(S):
1. Safety and Risk Assessments in support of Plum Brook test operations. 2. Independent Assessment evaluation of the ISS power system.	1. NASA Headquarters Code Q&M 2. Manager Plum Brook Facility 3. ISS Program Manager

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
QUALITY MANAGEMENT OFFICE (0520)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: QUALITY ENGINEERING

Quality Engineering provides contract review, specifications development, requirements tailoring, and general engineering expertise as outlined:

Non Destructive Engineering - selection of appropriate process
Fabrication - selection of materials and processes
Scanning Electron Microscopy - failure analysis and material identification

Documentation Review for parts or systems in general
Recommendations on feasibility, cost, and goodness of design
Electrical, Electronic and Electromagnetic components design and fabrication analysis

Review and Approval of Material Usage Agreements
Review and Approval of Materials Identification and Usage Lists
Maintenance of Materials and Processes Intercenter Agreements

RISK OF DOING NOTHING:

Cost and Schedule impacts as well as potential added safety and reliability risk

METRIC(S):	GOAL(S):
1. Requirements review cycle.	1. Establish a strong internal procedure under ISO 9001 from processing materials related reviews and approvals. Reduce the overall turn around time to less than one week.
TASK(S):	CUSTOMER(S):
1. Perform Failure Analysis 2. Review MIULs 3. Review/Approve MUAs 4. Microgravity payload quality assurance	1. Product Assurance Leads, Product Assurance Managers.

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
QUALITY MANAGEMENT OFFICE (0520)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: QUALITY ASSURANCE

Quality Assurance activities provide facility assessment, vendor surveillance, and general insight and oversight as an integral part of the quality assurance function as outlined:

Support the ISO/BMS Implementation Process by participating in the development and execution of the Lewis Internal Audit System.
Maintains LeRC's internal audit system
Provides facilities surveys as needed or requested
Validates tests, data, or processes
Provide critical inspection verification
Verify Hazard controls
Verify compliance to Safety or Environmental requirements

RISK OF DOING NOTHING:

1. Products that do not meet requirements or specifications.
2. ISO noncompliance
3. Projects taking unquantified risks.

METRIC(S):	GOAL(S):
1. Percent of annual audits completed 2. Percent of matrixed quality functions audited.	1. Complete one year audit cycle 2. Evaluate all matrixed quality functions
TASK(S):	CUSTOMER(S):
1. Internal audits 2. Facilities surveillance 3. Validation and verification	1. ISO Project Office 2. OSEMA supported projects 3. Matrixed quality functions

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
QUALITY MANAGEMENT OFFICE (0520)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: QUALITY MANAGEMENT

The Quality Management function addresses the Problem Reporting and Corrective Action (PRACA) for the Microgravity Space Experiments. This activity includes trending and management reporting of all PRACAs. The Government Industry Data Exchange Program (GIDEP) is monitored to provide a closed loop internal evaluation of active GIDEP Alerts across the Center. Lessons Learned are reported through the Quality Management function along with Headquarters coordination. The QASAR Awards are monitored and the Best of the Best QASARs are selected through this Office for submission to Code Q.

RISK OF DOING NOTHING:

Critical Engineering disciplines will not be covered leading to higher risk, poor products, or unsafe conditions.

METRIC(S):	GOAL(S):
1. Number of PRACAs entered 2. Number of PRACA reports requested 3. Number of Lessons Learned entered 4. Number of QASAR awards	1. Unify PRACA Systems to one COTS data base 2. Administer LLIS with Civil Servants only 3. Significant increases in QASAR awards
TASK(S):	CUSTOMER(S):
1. Support ISO 9001 implementation 2. Administer Lewis PRACA System 3. Administer the LLIS 4. Administer the QASAR System	1. Lewis programs, projects, activities and operations requiring process improvement data points.

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
LeRC SAFETY OFFICE (0530)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: FACILITY SUPPORT

This activity consists of four major work areas:

1. Facility inspections
2. Support to the Executive Safety Board and Safety Committees
3. Incident Response
4. Safety Permit Program

RISK OF DOING NOTHING:

1. Uncontrolled hazardous operation and testing environment
2. Increase of personnel injury and/or death

METRIC(S):	GOAL(S):
1. Percent Completion of annual facility inspections (quarterly basis) 2. Incident Rates versus Goals 3. Percent Completion of Safety Permit Process Review (quarterly basis)	1. Ninety percent facilities inspected per quarter. 2. Incident rate less than .20 per year. 3. Review 95 percent of the Safety Permit requests per quarter.
TASK(S):	CUSTOMER(S):
1. Oversight and review of permitted activities. 2. Management membership and chairperson appointments for ESB and SC's	1. Center Management/Staff 2. Safety Committee Chairpersons 3. Facility and R&D Organizations

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NASA LEWIS RESEARCH CENTER
LeRC SAFETY OFFICE (0530)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: CONSTRUCTION SUPPORT

1. Construction inspections, including but not limited to, lockout/tagout, construction safety, personal protective equipment, confined space entry, cranes/lifting devices, mishap/incident investigation and reporting, and vehicle and pedestrian safety.
2. Review of safety requirements for each project.

RISK OF DOING NOTHING:

1. Increase of personnel injury and/or death
2. Non compliance with the Lewis Safety Manual and other regulatory requirements

METRIC(S):	GOAL(S):
1. Percent Completion of construction inspections 2. Percent Completion of project safety requirement reviews	1. One hundred percent construction inspections per quarter. 2. Ninety-five percent of project reviews completed per quarter.
TASKS:	CUSTOMER(S):
1. Participate in pre-construction meetings 2. Support CoF Process	1. Facility and R&D Organizations 2. Construction Contractors

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
LeRC SAFETY OFFICE (0530)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: TECHNICAL SUPPORT

1. Risk Assessments
2. Hazard Analyses
3. Engineering reviews (fire protection/life safety, electrical, mechanical/HVAC, chemical/process/materials)
4. Interdisciplinary reviews (procurement deliverables, safety permits, confined space permits).

RISK OF DOING NOTHING:

1. Uncontrolled hazardous operation and testing environment
2. Increase of personnel injury and/or death

METRIC(S):	GOAL(S):
1. Percent Completion of Function Management Reviews 2. Number of Risk Assessment completed 3. Number of Hazard Analysis completed	1. Fifty percent completion of Functional Management Reviews per quarter. 2. Twenty-five percent of projected risk assessments per quarter. 3. Twenty-five percent of projected hazard analysis per quarter.
TASK(S):	CUSTOMER(S):
1. Verification of Corrective Action Implementation 2. Perform Hazard Analysis for all Safety Permits	1. Center Management 2. R&D Organizations 3. NASA HQ Code Q

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
LeRC SAFETY OFFICE (0530)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: PROGRAMS/PROCESSES

This activity consists of four major work areas:

1. Develop programs to ensure compliance with all OSHA Requirements.
2. Provide Safety Training, including safety alert bulletins, safety awareness programs, and safety award recognition.
3. Maintain the Lewis Safety Manual, including development/revision, configuration control, and publication.
4. Develop response procedures to support the LeRC Emergency Preparedness Plan.
5. Develop a Quality Program to meet the guidance within the Center's Business Management System and ISO 9001 criteria.

RISK OF DOING NOTHING:

1. Non Compliance with OSHA, NASA and other regulatory requirements.
2. Increase in personnel injury and/or death

METRIC(S):	GOAL(S):
1. Percent Completion of Pre-Fire Plans 2. Percent completion for the Office's BMS/ISO 9001 procedures and work instructions 3. Percent of attendees at mandatory safety training activities	1. Update 25 percent of Pre-Fire Plans per quarter. 2. Complete 25 percent of work instructions per quarter. 3. Ninety-five percent attendance to Safety Training per session.
TASK(S):	CUSTOMER(S):
1. Complete review and updating of the Center's Pre-Fire Plans 2. Conduct Safety Training/Awareness programs/ Activities 3. Present the annual Safety Awareness Program 4. Develop Safety Office procedures and work instructions consistent with the intent of the BMS and ISO 9001 requirements 5. Review and update the Lewis Safety Manual	1. Center Management/Staff 2. Facility Managers 3. R&D Organizations

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
ENVIRONMENTAL MANAGEMENT OFFICE (0540)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: REMEDIATION

FY99 Projects include remedial action at Lewis and remediation of underground storage tank sites at Plum Brook. The type of remediation needed depends on the results of studies currently underway. Funding is from the Environmental Compliance and Restoration portion of the CoF program.

RISK OF DOING NOTHING:

Would violate consent order with Ohio EPA and regulations on underground storage tanks.

METRIC(S):	GOAL(S):
Monitor remediation program risk	Achieve acceptable residual risk levels
TASK(S):	CUSTOMER(S):
1. Complete remedial investigation/feasibility study. 2. Prepare remedial design. 3. Contract for remedial action.	1. Headquarters/Code JE 2. Center Management/Staff

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
ENVIRONMENTAL MANAGEMENT OFFICE (0540)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: ABATEMENT

Activities include: Surveying building materials throughout the Center to determine asbestos content, identifying the highest priority areas for removal, contracting for and overseeing abatements, documenting results, and interfacing with regulatory agencies; surveying painted areas for lead content, identifying the highest priority areas for removal, contracting for and overseeing abatements, documenting results, and working with regulatory agencies

RISK OF DOING NOTHING:

Hazardous conditions would go unabated.

METRIC(S):	GOAL(S):
1. Project budgets and schedules	1. All projects on time and within budget.
TASK(S):	**CUSTOMER(S):**
1. Asbestos abatement process 2. Noise 3. Lead paint abatement process	1. Headquarters Code JE 2. Center Management/Staff

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
ENVIRONMENTAL MANAGEMENT OFFICE (0540)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: COMPLIANCE

Activities include: Maintaining a sitewide inventory of chemicals and containers, managing OSHA Hazard Communication Standard Compliance Program for LeRC, and preparing reports on chemical release per EPA requirements; Overseeing the use of radioactive materials at LeRC so as to ensure compliance with NRC regulations; Conducting noise surveys within buildings to determine sound levels, responding to community noise complaints, and conducting hearing conservation training; Management of asbestos, lead, cadmium, and other OSHA regulated materials programs; Management of the indoor air quality program; Response to emergencies; Collecting and arranging off-site disposal for hazardous wastes, managing wastewater discharges; Obtaining needed permits for air emissions; Performing assessments of the environmental impacts of new projects; Response to spills and other emergencies and management of fuel storage issues; Analyzing building materials to determine whether asbestos is present and at what concentrations; Analyzing paint samples to determine lead content; Analyzing water samples for wastewater permit parameters; Analyzing oil samples for chlorine & mercury content; and performing other analyses as needed.

RISK OF DOING NOTHING:
Non-compliance with EPA and OSHA standards; Unacceptable employee exposures

METRIC(S):	GOAL(S):
1. Percent of accuracy of chemical inventory 2. Percent of areas meeting noise level standards 3. Percent of air monitoring results w/in standards 4. Percent of compliance with wastewater discharge permits. 5. Percent of reduction in hazardous waste	1. Greater than 90% accuracy on chemical inventory. 2. 100% compliance with noise level standard. 3. 100% compliance with air monitoring standard. 4. 100% compliance for wastewater discharge. 5. 10% per year reduction in hazardous waste.
TASK(S):	CUSTOMER(S):
1. Sitewide chemical inventory 2. Providing labels & MSDS's 3. Preparing reports on chemical releases 4. Managing NRC license compliance 5. Managing laser safety program 6. Overseeing cyclotron & reactor facilities 7. Conducting noise level surveys 8. Conducting hearing conservation training 9. Responding to community noise complaints 10. Asbestos and lead paint tracing and consulting 11. Indoor air quality monitoring and management 12. Review of safety plans and permits 13. Hazardous waste collection and disposal 14. Environmental permitting and monitoring 15. Environmental impact assessment 16. Proficiency tests for chemical analyses	1. Center Management 2. LeRC Research Organizations 3. Project Management

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
SECURITY MANAGEMENT OFFICE (0550)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: PHYSICAL

The SMO plans, develops and manages the LeRC Physical Security Program. SMO serves as the focal point for policy, procedure and guidance in regard to the protection of LeRC personnel, facilities, buildings, property, materiel and information. SMO implements the LeRC Workplace Violence Program and conducts investigations as appropriate in support of LeRC's policy directive on dealing with serious conduct issues. SMO is the lead for coordinating nongovernment serious conduct issues. SMO ensures proper physical security practices and procedures through oversight of the security contractor force that implements the Center security program, the employee badge and pass office, traffic management, patrol officer activities, first response to incidents and investigations, emergency dispatch center operations and locksmith services. These activities are monitored by Security Specialists to ensure compliance with Executive Orders, NASA Security Handbook, NPG 1620.3, state and local laws, and LeRC directives.

RISK OF DOING NOTHING:

Failure to implement and effectively manage a Physical Security Program will result in increased vulnerability and risk of damage or loss to property and equipment, and or injury to personnel. Property loss or damage will adversely affect project and program management and operations costs. Heightened risk of personal injury or loss of personal property will result in eroded employee morale, thereby adversely affecting employee performance and productivity

METRIC(S):	GOAL(S):
1. Value of reported stolen property 2. Number of Thefts requiring investigations 3. Number of Facility Security Audits	1. Less than $50,000 per year stolen property 2. Less than 25 thefts per year 3. More than 10 per year
TASK(S):	CUSTOMER(S):
1. Install ACS, IDS and CCTVs based on availability of funds. 2. Flowchart work processes 3. Conduct Facility Security Audits 4. Implement a theft prevention program	1. All government employees 2. All contractor employees 3. All visitors 4. Headquarters' Security Office 5. All NASA Center Security Office 6. Selected government agencies

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
SECURITY MANAGEMENT OFFICE (0550)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: EXTERNAL PHYSICAL SECURITY

Finalize Annexes and fully implement Lewis Emergency Preparedness Plan (EPP). Negotiate and sign Community Response Agreements for Fire, Medical and HAZCOM response to meet LeRC needs. Provide facility site-specific emergency information and logistic requirements. Participate in community outreach programs and HQ Committees for EP program development and review. Develop working relationships with county and state emergency preparedness organizations by participating in local boards and by serving on various related committees. Participate in NASA functions in support of FEMA and the FBI under the Federal Response Plan.

RISK OF DOING NOTHING:

This activity involves government entities that are the only source of emergency response for Lewis employees, facilities, and programs. Inaction could result in center's inability to meet its, and NASA's response roles and responsibilities that could ultimately result in loss of life and property or severe schedule delays.

METRIC(S):	GOAL(S):
1. Percent of response agreements completed. 2. Number of Exercises conducted. 3. Number of Municipal Response Evaluated.	1. Complete response agreements with the three municipalities. 2. Tabletop review of all EPP Annexes. 3. Evaluate and document two responses per month.
TASKS:	CUSTOMER(S):
1. Emergency Preparedness program development 2. Community Response Agreements and exercises 3. Participate in the development of agency EPP Programs 4. Participate in local EP boards and committees	1. Center Management/Staff 2. Surrounding Communities 3. Agency Code Q

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
SECURITY MANAGEMENT OFFICE (0550)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: INFORMATION

The LeRC Information Security Program provides protection for classified and unclassified sensitive information, the disclosure of which is controlled by Executive Order 12958, The Space Act and other applicable statutes and directives. The primary function of the activity is to provide policy and procedure interpretation and guidance for information protection issues and to ensure compliance with governing directives. In the absence of formal classification guidance, interim guidance is provided for the protection of the information at question. Executive Order 12958 established the Information Security Oversight Office (ISOO) chartered to implement national program guidance for information classification management regarding classified information. The ISOO Directive Number 1 established national policy for information classification, marking, distribution, transmittal, disclosure, reproduction, storage and destruction. Information security downgrade policy is also established by the ISOO. NASA is presently making preparations for an agency-wide classified information downgrade project that will result in declassification and release of formerly classified information. This process is expected to last several years. Reports of violations or compromise of classified information are investigated and resolved at LeRC or referred to the Federal Bureau of Investigation as appropriate. Maintains Operational Security (OPSEC) standards to protect against inadvertent disclosure by government and contractor employees.

Information Security Education and Awareness is managed by the SMO with briefings provided to all employees. Briefings and training sessions include initial orientation for new employees, training sessions for new security clearance holders, periodic refresher briefings and awareness training to apprise employees of security risks, vulnerabilities and threats against LeRC information and technology. The security awareness program is mandated by NASA Handbook 1620.3 and is established as a separate AOA plan.

The SMO provides guidance for Industrial Security applications in accordance with the Department of Defense (DoD) National Industrial Security Program (NISPOM) to ensure compliance with national policy and procedures for contractor activities. Provides security guidance and compliance inspections to off-site industrial and government locations, consistent with policy and procedures established within NASA and at national policy decision levels.

The LeRC Industrial Security Program provides for classified programs to operate within the required security specifications of EO 12958 and the NASA NPG for facility security certifications for both special access and collateral classified programs. Coordinates with the Defense Industrial Security Agency in obtaining CAGE numbers, facility clearance, obtaining facility clearances for new contractors, etc. Coordinates approval process for access to the Defense Technical Information Certification (DD-1540) and the Scientific Technical

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
SECURITY MANAGEMENT OFFICE (0550)
FY99 FUNCTIONAL ACTIVITY SUMMARIES
INFORMATION (Continued)

ACTIVITY DESCRIPTION (Continued)

Information Facility (NASA 713). Reviews all DD254 contractor documents outlining Security Specifications required by E.O. 12958 and the NASA NPG for facility security certifications for both special and collateral classified programs. Works with the Defense Industrial Security Agency to conduct periodic inspections and assessments of contractor facilities holding security clearances.

RISK OF DOING NOTHING:

Non-compliance with the Information Security requirements listed above would put LeRC in direct violation of Executive Orders, Agency and national directives. Further, not protecting classified or sensitive information will result in program mismanagement, compromise of sensitive unclassified and/or classified information, thereby compromising agency programs and national security interests. Failure to provide Industrial Security in accordance with DoD and NASA policy and procedures will result in non-compliance with National Industrial Security Program.

METRIC(S):	GOAL(S):
1. Number of Classified Pages Reviewed 2. Number of Information Security Compromises 3. Number Classified Pages Destroyed/Downgraded 4. Number of discrepancies unresolved during audits 5. Number of classified contracts 6. Number of visit notification discrepancies resolved 7. Number of Technology Assessments	1. Review 500 Classified pages 2. Zero tolerance 3. 100%of those identified 4. Less than 5 per audit 5. 4 renewals per year 6. >5 discrepancies per year 7. 5 assessments per year
TASK(S):	CUSTOMER(S):
1. Manage the declassification program which completes the requirement for 25 year old NASA original classification document destruction in FY 1999. 2. Conduct Functional Management Self Assessment of Information Security activities. 3. Resolve all Information Security issues arising out of new NPG Security Manual 4. Develop Center Threat Assessment 5. Flowchart the SMO work processes 6. Establish an automated classified contracts database	1. All government employees 2. All contractor employees 3. All visitors 4. Headquarters' Security Office 5. All NASA Center Security Office 6. Selected government agencies

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
SECURITY MANAGEMENT OFFICE (0550)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: PERSONNEL

The Personnel Security Program ensures compliance with Executive Orders that require a suitability investigation for each government employee and a security background investigation for each employee required to gain access to national security (classified) information in the performance of their duties. Office of Personnel Management (OPM) and NASA directives establish the policy, procedures and process for selecting and initiating the appropriate type of investigation, the adjudicating of the investigation's findings and the granting of a security clearance. Suitability investigations are intended to establish an employee's eligibility for government employment or an assignment to a position of trust that does not require access to classified information. Positions of trust include those with significant influence in government programs and projects, commitment of government funds, jobs in Automated Information Systems, financial management and similar positions of trust in which a non-trustworthy employee's performance could adversely affect the requirements of the position. Personnel security investigations are conducted pre-employment for sensitive positions and upon entry to federal employment for non-sensitive positions. In addition to the required investigations, other supporting inquiries are conducted, typically to support or expand existing reports of investigation. Those include Immigration and Naturalization checks to validate citizenship status, credit checks to clarify or expand previously conducted investigations or criminal history checks in support of criminal allegations and investigations.

RISK OF DOING NOTHING:

Non-compliance with the Personnel Security requirements listed above would put LeRC in direct violation of Executive Orders and other national directives. Further, not accomplishing Personnel Security goals of determining the suitability for government employment and eligibility for access to national security information will result in program mismanagement and/or compromise or loss of sensitive unclassified or classified information, thereby compromising agency programs and national security interests.

METRIC(S):	GOAL(S):
1. Cost of Security Background Investigations	1. Maintain below $75,000 per year
2. Number Personnel Security Records Audited	2. 50 per month
3. Recertification	3. All Clearance Holders
4. Security Clearance adjudication turnaround time	4. Less than 5 working days
5. Flowchart processes	5. 3 flowcharts
6. Security education and awareness	6. 15 courses, briefings, newsletters, and notices
TASK(S):	CUSTOMER(S)
1. Flowchart work processes	1. All government employees
2. Implement a security clearance validation process	2. All contractor employees
3. Implement a Security Debriefing Program upon termination or reassignment	3. All visitors 4. Headquarters' Security Office
4. Develop and implement in coordination with OHR a sensitivity designation program.	5. All NASA Center Security Office 6. Selected government agencies
5. Plan and develop security education and awareness training resources.	

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
SECURITY MANAGEMENT OFFICE (0550)
FY99 FUNCTIONAL ACTIVITY SUMMARIES

ACTIVITY DESCRIPTION: COMPUTER SECURITY

Information Systems Security includes the activities of Communications Security (COMSEC), TEMPEST (The protection of electronic emanations from classified processing equipment and systems), Classified Computing, Unclassified Sensitive Computing and Technical Surveillance Countermeasures (TSCM) which encompass specialized security disciplines designed to prevent the unauthorized disclosure or compromise of National Security Information through electronic means. This information may be classified by National Security Directives, or may be unclassified sensitive information which is protected against unauthorized disclosure by law. National Security information, classified at the Confidential, Secret, or Top Secret level, must be protected during it's creation, preparation, data processing, publishing, transmission, storage or safeguarding processes and through the final destruction process.

The goal of the LeRC Technical Security Program, as is relates to information systems is to ensure that appropriate cost effective levels of integrity, availability, and confidentially are applied to the protection of all LeRC's classified and sensitive information systems in support of the Center's missions, programs and functions. The IT Security Program implements OMB A-130, Computer Security Act of 1987, NASA Policy Directives and NASA Policy Guidance 2410.9. The SMO has functional responsibility for ensuring compliance with these governing directives by ensuring that systems security plans, compliance audits, configuration management, vulnerability and risk assessments, system certifications, and recertification are conducted as appropriate. The SMO ensures a process exists to identify that all individuals whose job responsibility give them the ability to by-pass system security controls have an appropriate personnel security investigation commensurate with the sensitivity of the system and the magnitude of harm they could cause to the data and/or system. The SMO has functional responsibility for ensuring a centerwide computer incident responsibility exists and that users are trained to recognize a computer incident and report it to appropriate personnel. The SMO also has functional responsibility for ensuring that all employees who use the federal information system are appropriately trained by establishing a centerwide computer security awareness and training program.

The Technical Security function is responsible for the management of the IT Security Expert Center for Awareness and Training and in such capacity must oversee the development and presentation of innovative, leading edge IT Security courses for the Agency using breakthrough technologies supplemented by classroom instruction by national experts who provide in depth coverage on protection of the IT infrastructure. Multi-faceted aspects of information warfare are a critical element of the Agency IT Security Awareness and Training activity.

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
NASA LEWIS RESEARCH CENTER
SECURITY MANAGEMENT OFFICE (0550)
FY99 FUNCTIONAL ACTIVITY SUMMARIES
COMPUTER SECURITY (Continued)

Classified computing is performed in accordance with E.O. 12968, Office of Management and Budget (OMB) Circular A130, NASA Policy Guidance (NPG) 2410.9 and NISPOM (Including Supplement) and ISOO implementing instruction pursuant to E.O.12968. The Technical Security function has responsibility for ensuring compliance with these governing directives. Classified computing systems, classified data processing systems and stand-alone computers processing classified information are evaluated for spurious TEMPEST signals and potential electronic compromise.

Technical Surveillance Countermeasures (TSCM) surveys are used to detect the presence of clandestine technical surveillance devices that may utilize audio, video or other associated technical applications and to detect inadvertent compromise caused by incorrect equipment installations/modification procedures or equipment malfunctions. Other technical security applications are evaluated for security cost and human resource savings.

RISK OF DOING NOTHING:
Failure to protect Classified National Security Information or sensitive unclassified information in accord with federal laws, executive orders and policy directive constitutes a violation of law, National Policy and NASA Policy/Procedures. Information lost compromised or otherwise altered could cause exceptionally grave damage to the National Security, the loss of critical leading technologies, the loss of programmatic funding and the loss of LeRC's credibility.

METRIC(S):	GOAL(S):
1. Access /Reaccess IT Classified System	1. 100% Classified Systems
2. Recombinate COMSEC Safes	2. Annually
3. Inventory COMSEC Account	3. Every 6 months
4. Flow Chart Work Processes	4. Flowchart 3 Processes
5. Number of Information System Penetration Tests	5. 3 penetration tests.
TASK(S):	CUSTOMER(S):
1. Certify all facility Information Technology information systems, especially those supporting sensitive and classified projects	1. All government employees 2. All contractor employees 3. All visitors 4. Headquarters' Security Office 5. All NASA Center Security Office 6. Selected government agencies
2. Implement a standard IT risk assessment process for LeRC information systems.	
3. Flow Chart Work Processes	

LEWIS RESEARCH CENTER

OSE&MA AOA - FY99

APPENDIX 2

FY99 RESOURCE SUMMARIES

FIGURE 2-0

NASA LEWIS RESEARCH CENTER
OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE
OSEMA MANAGEMENT OPERATIONS (0500)
FY99 RESOURCE SUMMARY

1	2	3	4	5	6	7	8	9	10	11
Priority	**Activity**	**Work Process**	**Enterprise Customer**	**Minimum Effective CS FTE**	**Cum. CS FTE**	**NA Cost for CS Support**	**SSC Cost (K)**	**Code Q & Other Contract Cost**	**(K) Total Contract Cost (8+9)**	**(K) Total Cost (7+10)**
	OSEMA Management Operation									
	PS	M,A	A,S,M	0.5				425	425	425
	ROS - 0500 ADMINISTRATIVE	M.A	A,S,M	0.5		21	75		75	96
	CODE Q	M,A	A,S,M	2						
	CODE R	M,A	A	1						
	COF MANAGEMENT	M,A	A	0.5						
	METRICS	M,A	A,S,M	0.25						
	TRAINING	M,A	A,S,M	0.1						
	TRAVEL	M,A	A,S,M	0.1						
	PERSONNEL	M,A	A,S,M	1.05						
	TOTALS			6		21	75	425	500	521
	UNFUNDED PROGRAMS									
	None									
	Work Process Key	**Enterprise Customer Key**								
	M=Management	A=ASTT								
	A=Administration	S=Earth and Space Science								
		M=HEDS								

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APPENDIX 3

OUT-YEAR RESOURCE ESTIMATES

FIGURE 3-5b

OFFICE OF SAFETY, ENVIRONMENTAL AND MISSION ASSURANCE (0500)						
NASA LEWIS RESEARCH CENTER						
SAFETY OFFICE (0530)						
FY 1998 ACTUALS						
			ACTUALS FOR FY 1998			
			FUNDING			
ACTIVITY	WORK PROCESS	ENTERPRISE CUSTOMER	CS		($)	
				INST	HQTS	TOTAL
Internal Safety Program Operations		A,S,M	3	220	0	220
	Committee Management		2.7	42		42
	Lewis Safety Manual Dev & Main		0.2	84		84
	Safety Awareness Development		0.05	10		10
	Safety Data Management		0.05	84		84
External Safety Program Operations		A,S,M	3	52	0	52
	HQ Committees		0.3	5		5
	Community Activities		0.7	5		5
	Emergency Preparedness		1.7	42		42
	Municipal Agreements		0.3			0
Safety Assurance Compliance		A,S,M	5	176	9.1	185.1
	Regulatory Complaince		1			0
	Site Inspections		1.5	104	9.1	113.1
	Training		0.5	5		5
	Construction Support		0.6	10		10
	Procurement Support		0.1	25		25
	Emergency Preparedness		1	25		25
	Accident Investigation		0.3	7		7
GRAND TOTAL			11	448	9.1	457.1